

## A NEW BYRSONIMA FROM PUERTO RICO

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A distinct undescribed tree species of Byrsonima Rich. (family Malpighiaceae) has been noted during the preparation of an illustrated work on the trees of Puerto Rico by Frank H. Wadsworth and myself. Its formal publication with description from fresh specimens follows.

BYRSONIMA WADSWORTHII Little, sp. nov. (Subg. Macrozeugma Niedenzu, Sect. Acrotheca Niedenzu, Subsect. Brachyceras Niedenzu.) Arbor parva 5-8 m. alta, trunco 15-25 cm. diametro, multum ramificata, sempervirens. Ramuli grisei, dense adpresse tomentulosi demum glabri et fissiles. Stipulae basi connatae, ovatae, 2-3 mm. longae, acutae, adpresse tomentulosae. Folia opposita, petiolata, petiolis 3-10 (12) mm. longis, crassis, griseis, adpresse tomentulosis; laminae ellipticae interdum obovatae, 4-6 (3-8) cm. longae, 2.5-3 (2-5) cm. latae, basi rotundatae vel cuneatae, apice leviter retusae vel obtusae, coriacea, margine revolutae, supra virides vel atrovirides, leviter nitidae, novellae leviter tomentosae adultae glabrae nisi ad costam et basim versus, venis primariis plerumque 4-6 utrinque, his cum costa paullo impressis, subtus griseae et dense adpresse tomentulosae. Racemi terminales, 3-7 cm. longi, pedicellis 5-10 mm. longis; rachis adpresse tomentulosa basim versus pilis griseis et pilis brunneis apicem versus atque in pedicellis; bractae 1-2 mm. longae, acutae, pilis brunneis. Flores 10-12 mm. lati. Sepala 5, ovata, 4 mm. longa, acuta, pilis brunneis, persistentia, basim 2 glandulas oblongas albas demum brunneas gerentia. Petala 5, 5-6 mm. longa, ungue et lamina fere aequalibus, reniformia, denticulata, alba demum rosea, patentia et leviter recurva. Torus pilis brunneis 2 mm. longis. Stamina 10, 4 mm. longa, filamentis 3 mm. longis, roseis, basim versus pilosis; antherae loculi pallide flavi, glabri, mucronulati; connectivum plus quam 1 mm. longum, oblongum, flavum, antheras loculos fere duplo superans. Ovarium ovoideum, plus quam 2 mm. longum, brunneum, triangulare, adpresse tomentulosum, 3-loculare; styli 3, gracili, 2 mm. longi, albi. Drupa globoso-ovoides, 10-12 mm. longa, 8 mm. lata, rosea vel rubra, apicem acutum versus adpresse tomentulosa, leviter succulenta; putamen ovoideum 6-7 mm. longum et latum, apice acuto, verrucosum, albidum, osseum, 3 seminibus 4 mm. longis. Fig. 1.

Small tree 5-8 m. high, 15-25 cm. in trunk diameter, much branched, evergreen. Twigs gray, densely appressed tomentulose, at length glabrous and fissured. Stipules connate at base, ovate, 2-3 mm. long, acute, appressed tomentulose. Leaves opposite, petioled, with petioles 3-10 (12) mm. long, thick, gray, appressed tomentulose; blades elliptical or sometimes obovate, 4-6 (3-10) cm. long, 2.5-3 (2-5) cm. broad, base rounded or cuneate, apex slightly retuse or obtuse, coriaceous, margins revolute, above green or dark green, slightly shiny, when young slightly tomentulose but when mature glabrous except on midrib and toward base, primary veins usually 4-6 on each side, these with midrib slightly impressed, beneath gray and densely appressed tomentulose. Racemes terminal, 3-7 cm. long, with pedicels 5-10 mm. long; rachis appressed tomentulose with gray hairs toward base and with brown hairs toward apex and on pedicels; bracts 1-2 mm. long, acute, with brown hairs. Flowers 10-12 mm. broad. Sepals 5, ovate, 4 mm. long, acute, brown hairy, persistent, bearing 2 oblong glands 1 mm. long at base, white but at length brown. Petals 5, 5-6 mm. long, with claw and blade nearly equal, reniform, denticulate, white but at length pink, spreading and slightly recurved. Receptacle with brown hairs 2 mm. long. Stamens 10, 4 mm. long, filaments 3 mm. long, pink, hairy toward base, anther locules pale yellow, glabrous, mucronulate, connective more than 1 mm. long, oblong, yellow, nearly twice as long as anther locules. Ovary ovoid, more than 2 mm. long, brown, 3-angled, appressed tomentulose, 3-celled; styles 3, slender, 2 mm. long, white. Drupe globose-ovoid, 10-12 mm. long, 8 mm. broad, pink or red, appressed tomentulose near the acute apex, slightly fleshy; stone ovoid, 6-7 mm. long and broad, with acute apex, verrucose, whitish, bony, with 3 seeds 4 mm. long. Fig. 1.

The compact dense crown of dark green foliage varies from broad and spreading to narrow. The bark is brown or dark brown, with many small fissures or slightly furrowed, 5 mm. or more in thickness. Inner bark is red streaked in outer part and pinkish beneath, bitter. The wood is light brown and hard. Flowering in summer (June to August) and maturing fruit in autumn (September and October).

Almendrillo is the common name generally applied to this tree. Another common name, used also for other species of the genus, is maricao.

It is a pleasure to associate with this well-defined species the name of Frank Howard Wadsworth, who first called my attention to it as an unidentified species of Byrsonima occurring on sample plots and who collected specimens from the type tree with

me in 1950 and 1952. Dr. Wadsworth, an authority on forestry in Puerto Rico, has been in charge of forest research at the Tropical Region, United States Forest Service, Río Piedras, Puerto Rico, since 1942.

Byrsonima Rich. is a tropical American species of more than 100 species of trees and shrubs. Niedenzu (Pflanzenreich Heft 91, 93, 94 (IV. 141), 870 p., illus. 1928) in his thorough monograph of family Malpighiaceae accepted 104 species of Byrsonima with additional varieties. A few other species have been published since. According to Niedenzu's key, Byrsonima wadsworthii belongs in Subg. Macrozeugma, Sect. Acrotheca, Subsect. Brachycerae, in which only 4 species were placed, including B. trinitensis Juss. and B. martinicensis Krug & Urban in the West Indies and 2 others of South America. The new species would be near the same 2 species in a separate key to the West Indian species of this genus published the same year by Niedenzu (Repert. Spec. Novarum Regni Veg. 24: 249-252. 1928) and in the key of the earlier monograph by Small (No. Amer. Fl. 25: 166-171. 1910).

Byrsonima wadsworthii is readily distinguished from the 5 species of this genus recorded from Puerto Rico by Britton and Wilson (Sci. Surv. P. R. 5: 446-448. 1924) by its elliptical coriaceous leaves densely and finely gray hairy beneath. The white petals turning pink separate it from all except B. lucida (Mill.) Rich., as the other 4 species have yellow flowers.

This new species has been collected in four separated mountainous areas of Puerto Rico and may be sought in others. Byrsonima wadsworthii is distributed chiefly in the dwarf forests on ridges along the mountain summits at elevations between 2,500 and 3,000 feet but sometimes occurs in mountain forests on slopes at slightly lower elevations. The main center of distribution is Luquillo Mountains, an isolated mountainous area in the northeastern part of the island and the home of many endemic species. There it has been collected at several places within the Luquillo Division of the Caribbean National Forest, including near La Mina Ranger Station (the type locality) in the central part of these mountains and in the northwestern part south of Río Grande and El Verde Ranger Station. One specimen was from Toro Negro Division of the Caribbean National Forest in mountains of the central part of Puerto Rico about 75 kilometers west of Luquillo Mountains.

In 1952 I collected it also within forests of the Commonwealth of Puerto Rico in two other parts of the island. One was at Bosque de Carite more than 30 kilometers southwest of Luquillo

Mountains, south of Caguas and also in the eastern mountains. The other was at Bosque de Guilarte, about 75 kilometers farther west, near Adjuntas and in the western mountains of Puerto Rico. On short field trips I found trees at two different localities in each of these two Commonwealth forests.

This new species is rare and scattered. Associated tree species in the dwarf forests of Luquillo Mountains include Clusia krugiana Urban, Micropholis garcinifolia Pierre, Tabebuia rigida Urban, and Hirtella rugosa Pers.

Puerto Rico has been so thoroughly explored by botanists in the past that a new species of trees is unexpected. However, this species remained undetected until recent years, after the mountainous areas have been made more accessible by automobile highways. The late flowering of this species in summer may account in part for its absence in collections made by botanists visiting the island in winter and spring.

In March 1934, Claud L. Horn, of the United States Department of Agriculture, then with the Forest Service, collected specimens in the Luquillo Mountains of the Caribbean National Forest. A duplicate sent to the New York Botanical Garden was "identified by P. Wilson as probably a new species."

The National Herbarium of the United States National Museum contained one specimen of this species, collected by F. H. Sargent in the same area on July 4, 1938.

On July 7, 1939, Dr. Leslie R. Holdridge, while with the United States Forest Service, collected specimens also on the Luquillo Division and noted on the label that this species was not in Britton and Wilson's Botany of Porto Rico and the Virgin Islands. Luis E. Gregory, then with the U. S. Forest Service also, on Sept. 14 of the same year found this species on the Toro Negro Division of the Caribbean National Forest, in the central part of the island.

Mrs. Frances W. Horne, artist and botanist who has made numerous beautiful paintings of the plants of Puerto Rico, found this species on July 13, 1939, in Luquillo Mountains south of Río Grande. She reported seeing it near Maricao on July 29 of the same year. (Previously she had discovered another new species, Byrsonima horneana Britton & Small, near Mayaguez.) After making a painting of this unidentified species, she sent a specimen to Percy Wilson (1879-1944) at the New York Botanical Garden. He replied that it was a new species and that he was forwarding the specimen to Franz Niedenzu (1857-1937), of Germany,

the recognized authority on the family Malpighiaceae. However, Niedenzu was no longer living, and Wilson, whose health was declining, retired in 1939 also and died in 1944. The large Berlin Herbarium was destroyed in the late war, and the new species remained undescribed.

The specimens examined are cited below. Duplicates are being deposited in herbaria of the U. S. National Museum (US), U. S. Forest Service at Washington, D. C. (FS), U. S. Forest Service at Río Piedras, Puerto Rico (TR), and New York Botanical Garden (NY), and will be distributed to other herbaria.

PUERTO RICO. Caribbean National Forest, Luquillo Division: C. L. Horn 42 (NY, TR), March 1934, Río Blanco—Río La Mina ridge; F. H. Sargent 546 (US), July 4, 1938, El Yunque; L. R. Holdridge 57 (NY, TR), July 7, 1939, Pizá; F. H. Wadsworth Aug. 28, 1944 (TR), Pizá; D. B. Fanshawe 814 (TR), El Verde; E. L. Little, Jr., and F. H. Wadsworth 13575 (US, FS, TR), Aug. 9, 1950, on trail about 1 km. east of La Mina Ranger Station, from type tree; E. L. Little, Jr., 14799 (US, FS, TR), June 13, 1952, same locality; E. L. Little, Jr., 14802 (US—HOLOTYPE, FS, TR, NY), June 13, 1952, same locality, from type tree; E. L. Little, Jr., and F. H. Wadsworth 14900 (US, FS, TR), Aug. 23, 1952, same locality, from type tree.

Caribbean National Forest, Toro Negro Division: L. E. Gregory 42 (NY), Sept. 14, 1939, Matrullas Road.

Bosque de Carite (near Cayey): E. L. Little, Jr., 14872 (US, FS, TR), Aug. 19, 1952.

Bosque de Guilarte (near Adjuntas): E. L. Little, Jr., 14853 (US, FS, TR), Aug. 5, 1952.

Figure 1 is a drawing made from a fresh specimen by Francisco Roena Santiago.

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